



TECHNICAL DATA SHEET

POLYPROOF PHENOL RESORCINOL ADHESIVE WITH HARDENER

The combination Polyproof Adhesive with hardener is approved by NTI, Norway, Otto-Graf Institut (FMFA), Germany, SKH/KOMO (DHBC No. 32389), Holland for the production of load-bearing timber structures.

Polyproof can be used in door production, lamination, finger jointing and other applications in the wood working industry, where there is demand for high water and weather resistance of the joints. The combination has short pressing times even at lower pressing temperatures.

PRODUCT DESCRIPTION

This super-professional, two part glue has been specially developed for waterproof exterior use and can stand continuous immersion in water. This glue is so waterproof - boat builders use it. Developed for the marine industry this is the only completely waterproof adhesive that will withstand continual immersion in water. For use externally where extreme weathering will take place. Arches for bridge work, concrete formers, marine craft construction, bonding of preservative treated timber..

Bonding of difficult timber i.e. teak and Iroko. Fire resistant to class 0. Used extensively for bonding difficult timbers such as teak and iroko where normal adhesives could fail. • structural timber • laminated roof members • timber in constant contact with water • timber in contact with the ground.

DIRECTIONS FOR USE

General Application for jointing To obtain the very best results the moisture content should be in the 12-14% range. Timber bought as kiln dried and stored under cover will present no problem.

Perhaps as important as the glue is the preparation the joining surfaces, especially for Oak and oily timbers, Teak, Iroko etc.

Timber direct from machining has a slightly glazed surface and the surface fibres are compressed by rollers etc, far from ideal and it is essential that the surfaces to be joined should be ridded of this unwanted smoothness.

Use a scouring plane (blade with fine points), hacksaw blade, or very coarse sandpaper. Plywood must be, treated in the same manner. Dust with a bristle brush, oily timbers should be degreased with methylated spirit. The faying area should be abraded as close to bonding as practically possible. As important as preparation, is working in the correct temperature and that means, within reason, as warm as possible, 20C is ideal. At higher temperatures the glue becomes much less viscous, easier to apply and penetrates the timber instead of laying on the surface, a better glue line results.

For the best results both surfaces of the joint should be glued. Use good quality brushes. Surfaces once glued should not be exposed to the air for any length of time. Do not over clamp; it's possible to starve a joint this way

A minimum of twenty minutes closed assembly time should be allowed before the application of

pressure.

Just bring the surfaces firmly into contact.

This will enable the glue to penetrate the surface fibres of the timber and avoid excessive squeeze out. The removal of surplus glue is best carried out when the glue has reached a jelly like stage, just before it goes off; it comes off readily and doesn't stick to anything. If the glue sets hard it will prove very arduous to remove it and from awkward places almost impossible.

Application tools Roller spreader, ribbon spreader etc

Mixing ratio Adhesive 100 parts by weight
Hardener 15 parts by weight

The accuracy in the hardener amount shall be ± 1 pbw.

Pot life Temperature of glue mix 10°C 15°C 20°C 25°C 30°C
Pot life in hours 4½ 2¼ 1¼ 2/3 ½

When preparing large amounts of glue mixture, it is recommended to cool the glue to 10-15°C and after that add the hardener to extend the pot life.

Wood temperature The temperature should not be lower than 20°C.

Moisture content of the wood 8 - 14%. For the production of laminated beams 10 - 12%.

Planing of the wood Newly planed surfaces give the best gluing result. For best result at laminated beam production the timber must be smoothly planed. For optimum bonding strength the planing should take place within 24 hours before gluing.

Glue spread For production of laminated beams a minimum glue spread of 400-450 g/m² single-sided is recommended. A reduction of the glue spread, e.g. at very short assembly times, is only allowed to be done together with the Polyvine Products Technical Advisors, depending on the production parameters for the production line in question. This optimization implies that the set parameters are followed and that a continuous control of the adhesion quality is made by means of delamination tests. At HF gluings a glue spread of 250-350 g/m² single-sided is recommended. At other applications: 150-300 g/m².

Difficult-to-glue wood or hardwood may require double spreading in amounts of 150-200 g/m² on each side.

Assembly time The assembly time is the time from the glue application until the pressure is applied. The assembly time can consist of closed and open assembly time. The assembly time is influenced by the amount of adhesive, temperature and moisture content of the wood. The pressure must be applied while the glue is still tacky.

Closed assembly time Closed assembly time in minutes with different glue spreading and temperatures.

Glue spread	350 g/m ²			450 g/m ²		
	20°C	25°C	30°C	20°C	25°C	30°C
<u>Pine</u>						
Minimum time	5	4	3	7	6	4
Maximum time	30	25	15	45	30	20
<u>Spruce</u>						
Minimum time	10	8	5	15	10	7
Maximum time	30	25	15	45	30	20

Double spreading can increase the closed assembly time by 30-40%.

Open assembly time The open assembly time is approximately half of the closed assembly time. When gluing hard wood it is favourable with long assembly times.

Pressing temperature Soft wood can be glued at a joint temperature of 20°C. To be sure to obtain a good result heating of the glue joint to 30°C is recommended. When gluing hard wood the temperature of the glue joint must be at least 40°C. Constructions with tensions and hard woods requires at least 60°C to obtain adequate strength. Lowest pressing temperature has to be tried out. After the pressure is applied the heating can start.

Pressure Minimum 0,5 MPa for soft wood
Minimum 1,0 MPa for hard wood

In laminated beam production:
Minimum 0,7 MPa for 33 mm lamellas
Minimum 0,9 MPa for 45 mm lamellas

According to DIN 1052/1-A1 the maximum allowed thickness of lamellae is 42 mm.

Pressing time The pressing time depends on the temperature, the distance to the innermost glue joint, the glue spread, etc. The table below may be used as a guideline.

<u>Glue joint temperature</u>	<u>Minimum time for curing at indicated glue joint temperature</u>
20°C	4 hours
30°C	2 hours
40°C	45 min
60°C	12 min
80°C	3 min
100°C	1 min

It is essential that an adequate heating time is added to the above indicated times.

FINGERJOINTING OF CONSTRUCTION TIMBER.

Application equipment	Profiled rollers, die.	
Moisture content	Maximum 23%.	
Glue spread	With single-sided application 250-300 g/m ² and with application on both ends 125-150 g/m ² on each end. The total surface is for a 15 mm profile 8 x the cross-section of the wood, for 20 mm profile 6,5 x the cross-section of the wood and with 28-32 mm profile 10 x the cross-section of the wood.	
HF-heating	When fingerjointing lamellae for construction timber the temperature of the wood must be at least 15°C and the timber must be stored inhouse for at least 24 hours after fingerjointing. If HF-heating is used the fingerjointed lamellae can be taken out after 2 hours.	
Assembly time	Maximum 90 sec.	
Mixing proportions	Adhesive 100 pbw Hardener 15 pbw	
	The accuracy when adding hardener should be ± 1 pbw.	
Further processing	Planing of finger-jointed wood can be made 7-10 minutes after jointing provided that the planer is not pulling the wood. Full hardening of the finger joint is achieved after 2 hours if the temperature of the wood in the joint zone has been more than 60°C. If pressing is made at 20°C full hardening is achieved after 24 hours.	
Delivery form	Adhesive liquid Hardener liquid	
Colour	Adhesive dark brown Hardener greyish brown	
Viscosity	Brookfield LVT, sp. 4, 12 r/min, 25°C:	
	Adhesive	approx. 5000 mPa.s
	Hardener	approx. 8000 mPa.s
Density	Adhesive	approx. 1150 kg/m ³
	Hardener	approx. 1220 kg/m ³
Dry solids	Adhesive	approx. 56%

pH	Adhesive	approx. 8
	Hardener	approx. 5
Flash point	Adhesive	70°C
	Hardener	81°C

OTHER DATA

Properties of the bond-line Polyproof with hardener fulfils the requirements according to EN 301 (for glue type I and II, service classes 1,2,3), EN 391, EN 392 and DIN 68141.

Storage life Adhesive 6 months at 20°C in well closed packaging.
Hardener 6 months at 20°C in well closed packaging.

If the packaging is left open when not in use the glue is susceptible to skin formation on the surface. To avoid this the packaging should be closed when not in use.

Temperature sensitivity Most suitable storage temperature is 15°C. The glue and the hardener are not harmed by freezing. If frozen, the adhesive and the hardener should be slowly thawed, after which the products are ready to use. Do not expose the glue or the hardener to temperatures above +30°C.

Moisture sensitivity None.

HEALTH AND SAFETY

Handling and cleaning instructions Information regarding health and safety is found in the Materials Safety Data Sheet. Make sure always to study this information carefully before taking any new product into consideration. Glue on skin is washed with soap and water. The tools are washed with tepid water before the glue has cured.

The information supplied herein is accurate to the best of our knowledge. Since conditions and methods are beyond our control, no warranty is expressed or implied. You are advised to access the suitability of the product on a test area before application

Further information may be obtained from:

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Date of issue: October 2009

Conforms to 91/155/EEC - 2001/58/EC - Europe



SAFETY DATA SHEET

POLYPROOF HARDENER

1. Identification of the substance/preparation and of the company/undertaking

1.1

Product name POLYPROOF HARDENER

Common/Trade name Not available.
Chemical product name phenol-resorcinol-formaldehyde resin
Molecular weight Not applicable.
Chemical Family Adhesive.
Code: APP670
Material Uses: Adhesive;

1.2

COMPANY DETAILS

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Prepared by: Mike Sherman

2. Composition / information on ingredients

Substance/Preparation
Chemical name*

Preparation

Chemical name*	CAS No.	%	EC Number	Classification
Formaldehyde.	50-00-0	30-60	200-001-8	Carc. Cat. 3; R40 T; R23/24/25 C; R34 R43
2,2'-oxybisethanol Methanol	111-46-6 67-56-1	5-10 1-5	203-872-2 200-659-6	Xn; R22 F; R11 T; R23/24/25, 39/23/24/25
See Section 16 for the full text of the R Phrases declared above				

* Occupational Exposure Limit(s), if available, are listed in section 8

3. Hazards identification

The preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Carc. Cat. 3; R40
T; R23/24/25
Xn; R68/20/21/22
C; R34
R43
R40- Limited evidence of a carcinogenic effect.
R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.
R68/20/21/22- Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.
R34- Causes burns.
R43- May cause sensitization by skin contact.

Effects and symptoms

Inhalation : May be fatal if inhaled.

Ingestion : May be fatal if swallowed.

Aggravating conditions : Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

4. First-aid measures

First-Aid measures

Inhalation If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Ingestion Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin Contact In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if symptoms appear.

Eye Contact Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

5 Fire-fighting measures.

Extinguishing Media

Suitable In case of fire, use water spray (fog), foam, dry chemical, or CO2.

Hazardous thermal (de)composition carbon oxides (CO, CO₂)
Products

Special fire-fighting procedures Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Protection of fire-fighters Be sure to use an approved/certified respirator or equivalent.

6. Accidental release measures

- Personal precautions** : Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product.
- Environmental Precautions and Clean-up Methods** : Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Do not touch spilled material. Use water spray to reduce vapors. Absorb with an inert material and put the spilled material in an appropriate waste disposal. Prevent entry into sewers, basements or confined areas. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

7. Handling and storage

- Handling** : Keep locked up. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label.
- Storage** : Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Store between -30 to 30°C (-22 to 86°F).
- Packaging materials**
- Recommended use** : Use original container.

8. Exposure controls/personal protection

- Engineering measures** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.
- Hygiene measures** : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

<u>Ingredient Name</u>	<u>Occupational Exposure Limits</u>
Formaldehyde.	ACGIH TLV (United States, 2000). Notes: Substance identified by other sources as a suspected or confirmed human carcinogen. 2000 Adoption. Refers to Appendix A -- Carcinogens. CEIL: 0,37 mg/m ³ CEIL: 0,3 ppm
Methanol	EU OEL (Europe, 1991). Notes: Indicative TWA: 260 mg/m ³ 8 hour(s). TWA: 200 ppm 8 hour(s).

Recommended monitoring procedures :

Personal protective equipment

- Respiratory system** : Vapor respirator. Wear appropriate respirator when ventilation is inadequate. (as filter B)
- Skin and body** : Protective Clothing
- Hands** : Butyl gloves. Neoprene gloves. Nitrile gloves. Always check with the manufacturer of the gloves if their quality fulfils the requirements for the chemical composition.
- Eyes** : Safety glasses with side shields.

9. Physical and chemical properties

Physical state	: Liquid.
Color	: White to yellowish.
Odor	: Strong.
pH	: 5 (Conc. (% w/w): 100) [Acidic.]
Boiling Point	: The lowest known value is 64.55°C (148.2°F) (Methanol). Weighted average: 111.15°C (232.1°F)
Melting Point	: May start to solidify at -7.95°C (17.7°F) based on data for: 2,2'-oxybisethanol. Weighted average: -82.95°C (-117.3°F)
Flash point	: Closed cup: 81°C (177.8°F).
Autoignition temperature	: The lowest known value is 223.9 to 228.9°C (435 to 444°F) (2,2'-oxybisethanol).
Explosive properties	: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Lower explosion limit	: The greatest known range is LOWER: 7% UPPER: 73% (Formaldehyde.)
Oxidizing Properties	: Not available.
Vapor Pressure	: The highest known value is 1.7 kPa (12.9 mmHg) (at 20°C) (Methanol).
Density	: 1.2 g/cm ³ (25°C / 77°F)
Solubility	: Soluble in hot water. Very slightly soluble in cold water.
Viscosity	: Dynamic: 17000 to 24000 cP
Vapor Density	: The highest known value is 3.66 (Air = 1) (2,2'-oxybisethanol). Weighted average: 1.34 (Air = 1)
Evaporation rate (butyl acetate = 1)	: The highest known value is 2.1 (Methanol) Weighted average: 0.89 compared to (n-BUTYL ACETATE=1)

10. Stability and reactivity

Stability The product is stable.

Hazardous Decomposition Products carbon oxides (CO, CO₂)

11. Toxicological information

Acute toxicity

<u>Ingredient Name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
formaldehyde	LD50	100 mg/kg	Oral	Rat
	LD50	42 mg/kg	Oral	Mouse
	LD50	260 mg/kg	Oral	Guinea pig
	LDLo	108 mg/kg	Oral	woman
glycol ether	LD50	12565 mg/kg	Oral	Rat
	LD50	4400 mg/kg	Oral	Rabbit
	LD50	3300 mg/kg	Oral	Cat.
	LD50	11890 mg/kg	Dermal	Rabbit
methanol	LD50	5628 mg/kg	Oral	Rat
	LD50	14200 mg/kg	Oral	Rabbit
	LD50	7300 mg/kg	Oral	Mouse
	LD50	15800 mg/kg	Dermal	Rabbit
	LDLo	143 mg/kg	Oral	human
	LDLo	428 mg/kg	Oral	human
	LDLo	6422 mg/kg	Oral	man
	LDLo	393 mg/kg	Dermal	Monkey.

Local effects

Skin irritation	: Hazardous in case of skin contact (corrosive).
Eye irritation	: Hazardous in case of eye contact (corrosive).
Sensitization	: Hazardous in case of skin contact (sensitizer).

Chronic toxicity : Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Specific effects

Carcinogenic Effects : Classified + (Proven.) by OSHA [Formaldehyde]. Classified 3 (Possible for human.) by European Union [Formaldehyde]. Classified A2 (Suspected for human.) by ACGIH, 2A (Probable for human.) by IARC, 2 (Reasonably Anticipated To Be Human Carcinogens.) by NTP [Formaldehyde]. Classified None. by NIOSH [Formaldehyde]. Classified None. by NIOSH [2,2'-oxybisethanol]. Classified None. by NIOSH [Methanol].

Developmental and Teratogenic Effects :

GENERAL INFORMATION : Not available.

12 Ecological information.

Ecotoxicity Data

<u>Ingredient Name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
glycol ether	Pimephales promelas (LC50)	96 hours	75200 mg/l
methanol	Daphnia magna (EC50)	48 hours	>10000 mg/l
	Oncorhynchus mykiss (EC50)	48 hours	13200 mg/l
	Lepomis macrochirus (EC50)	48 hours	16000 mg/l
	Pimephales promelas (LC50)	96 hours	>100 mg/l
	Daphnia magna (LC50)	96 hours	>100 mg/l
	Lepomis macrochirus (LC50)	96 hours	15400 mg/l

GENERAL INFORMATION : Not available.

13. Disposal considerations

Methods of disposal ; Waste of residues ; Contaminated packaging

Type: Hazardous chemical waste.

Location: not available

Classification: not available

Disposal.: Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Storage: not available

Recycling: not available

Instructions for emptying of different packages are available.





Waste Classification Not applicable.

European Waste Catalogue (EWC): 080109*

Hazardous Waste: The classification of the product may meet the criteria for a hazardous waste


14. Transport information

International transport regulations

<u>Regulatory Information</u>	<u>UN number</u>	<u>Proper shipping name</u>	<u>Class</u>	<u>Packing Group</u>	<u>Label</u>	<u>Additional information</u>
ADR/RID Class	2209	Formaldehyde solution solution	8	III		Hazard Identification Number 80
ADN Class	2209	FORMALDEHYDE SOLUTION solution	8	III		-
IMDG Class	2209	FORMALDEHYDE SOLUTION solution	8	III		Emergency Schedules (EmS) 8-07
IATA-DGR Class	2209	FORMALDEHYDE SOLUTION solution	8	III		-

15. Regulatory information

EU Regulations

Hazard symbol(s)	:	
		Toxic
Risk Phrases	:	R40- Limited evidence of a carcinogenic effect. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R68/20/21/22- Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed. R34- Causes burns. R43- May cause sensitization by skin contact.
Safety Phrases	:	S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Contains	:	Formaldehyde. 200-001-8 Methanol 200-659-6
Product Use	:	Classification and labeling have been performed according to EU directives 67/548/EEC, 1999/45/EC including amendments and the intended use. - Industrial applications.

16. Other information

Full text of R-Phrases with no. appearing in Section 2 - Europe	:	R11- Highly flammable. R40- Limited evidence of a carcinogenic effect. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R39/23/24/25- Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. R22- Harmful if swallowed. R68/20/21/22- Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed. R34- Causes burns. R43- May cause sensitization by skin contact.
Text of classifications appearing in Section 2 - Europe	:	F - Highly flammable Carc. Cat.3 - Carcinogen Category 3 T - Toxic C - Corrosive Xn - Harmful

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any

liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with

caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Conforms to 91/155/EEC - 2001/58/EC - Europe



SAFETY DATA SHEET

POLYPROOF RESIN

1. Identification of the substance/preparation and of the company/undertaking

1.1

Product name POLYPROOF RESIN

Common/Trade name Not available.
Chemical product name phenol-resorcinol-formaldehyde resin
Molecular weight Not applicable.
Chemical Family Adhesive.
Code: APP670
Material Uses: Adhesive;

1.2

COMPANY DETAILS

Manufacturer POLYVINE LIMITED
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1.3

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Prepared by: Mike Sherman

2. Composition / information on ingredients

Substance/Preparation
Chemical name*

Preparation

Chemical name*	CAS No.	%	EC Number	Classification
Resorcinol	108-46-3	10-30	203-585-2	Xn; R22 Xi; R36/38 N; R50
Ethanol	64-17-5	5-10	200-578-6	F; R11
Phenol	108-95-2	1-5	203-632-7	T; R24/25
Sodium hydroxide	1310-73-2	0.1-1	215-185-5	C; R34 C; R35
See Section 16 for the full text of the R Phrases declared above				

* Occupational Exposure Limit(s), if available, are listed in section 8

3. Hazards identification

The preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification Xn; R21/22

Xi; R36/38

R21/22- Harmful in contact with skin and if swallowed.

R36/38- Irritating to eyes and skin.

Effects and symptoms

Eye Contact Hazardous in case of eye contact (irritant).

Aggravating conditions Repeated or prolonged exposure is not known to aggravate medical condition

4. First-aid measures

First-Aid measures

Inhalation If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Ingestion Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin Contact In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if symptoms appear.

Eye Contact Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

5 Fire-fighting measures.

Extinguishing Media

Suitable In case of fire, use water spray (fog), foam, dry chemical, or CO2.

Hazardous thermal (de)composition carbon oxides (CO, CO₂)

Products

Special fire-fighting procedures Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Protection of fire-fighters Be sure to use an approved/certified respirator or equivalent.

6. Accidental release measures

Personal precautions Splash goggles. Boots. Gloves. Overalls buttoned to the neck and wrist.

Environmental Precautions and

Clean-up Methods Stop leak if without risk. Prevent entry into sewers, basements or confined areas. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Note: See section 8 for personal protective equipment and section 13 for waste disposal.

7. Handling and storage

Storage Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use.

Handling Do not breathe gas/fumes/ vapour/spray. Wear suitable protective clothing, gloves and eye/face protection. If swallowed, seek medical advice immediately and show this container or label.

Packaging materials

Recommended use Use original container.

8. Exposure controls/personal protection

Engineering measures Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the workstation location.

Hygiene measures Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking,

Ingredient Name Occupational Exposure Limits

Ethanol ACGIH (United States).

TWA: 1000 ppm

TWA: 1000 ppm 8 hour(s).

TWA: 1880 mg/m³ 8 hour(s).

ACGIH TLV (United States, 2000). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens.

TWA: 1880 mg/m³ 8 hour(s).

TWA: 1000 ppm 8 hour(s).

Phenol 2000/39/EC (Europe, 2000). Skin

TWA: 2 ppm 8 hour(s).

TWA: 7,8 mg/m³ 8 hour(s).

80/1107/EEC (Europe, 2000). Skin Notes: Indicative

TWA: 7,8 mg/m³ 8 hour(s).

TWA: 2 ppm 8 hour(s).

Sodium hydroxide ACGIH TLV (United States, 2000).

CEIL: 2 mg/m³

Recommended monitoring procedures

Personal protective equipment

Respiratory system : Vapour respirator. as filter A2 Wear appropriate respirator when ventilation is inadequate.

Skin and body Overalls buttoned to the neck and wrist.

Hands Neoprene gloves. Nitrile gloves. Always check with the manufacturer of the gloves if their quality fulfils the requirements for the chemical composition.

Eyes Safety glasses with side shields.:

9. Physical and chemical properties

Physical state Liquid

Melting Point May start to solidify at -113.84°C (-172.9°F) based on data for: Ethanol.

Boiling Point The lowest known value is 78.4°C (173.1°F) (Ethanol).

Vapour Pressure The highest known value is 0.8 kPa (5.8 mmHg) (at 20°C) (Ethanol).

Density 1.115 g/cm³

Vapour Density The highest known value is 1.6 (Air = 1) (Ethanol).

Solubility Easily soluble in methanol, diethyl ether.

Soluble in hot water.

Partially soluble in cold water.

Odour Threshold The lowest known value is 180 ppm (Ethanol)

Odour Not available.

PH 7.9 to 8.15 (Conc. (% w/w): 100) [Basic.]

Colour Brown. (Dark.)

Evaporation rate (butyl acetate = 1) 1.7 (Ethanol) compared to (n-BUTYL ACETATE=1)

Auto ignition temperature The lowest known value is 398.9°C (750°F) (Ethanol).

Flash point Closed cup: 70°C (158°F).

Viscosity Dynamic: 8000 to 11000 cP

Lower explosion limit The greatest known range is LOWER: 4.3% UPPER: 19% (Ethanol)

Explosive properties Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

Oxidizing Properties Not available.

10. Stability and reactivity

Stability The product is stable.

Hazardous Decomposition Products carbon oxides (CO, CO₂)

11. Toxicological information

Acute toxicity

<u>Ingredient Name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
Resorcinol	LD50	301 mg/kg	Oral	Rat
	LD50	200 mg/kg	Oral	Mouse
	LD50	3360 mg/kg	Dermal	Guinea pig
ETHANOL	LD50	7060 mg/kg	Oral	Rat
	LD50	6300 mg/kg	Oral	Rabbit
	LD50	3450 mg/kg	Oral	Mouse
	LDLo	1400 mg/kg	Oral	human
	LDLo	5500 mg/kg	Oral	Dog
	LC50	20000 (10 hours)	INHALATION	Rat
	LD50	317 mg/kg	Oral	Rat
PHENOL	LD50	270 mg/kg	Oral	Mouse
	LD50	500 mg/kg	Oral	Mammal
	LD50	630 mg/kg	Dermal	Rabbit
	LD50	669 mg/kg	Dermal	Rat
	LDLo	420 mg/kg	Oral	Rabbit
	LDLo	10 mg/kg	Oral	infant
	LDLo	80 mg/kg	Oral	Cat.
	LDLo	500 mg/kg	Oral	Rabbit
SODIUM HYDROXIDE	LDLo	500 mg/kg	Oral	Rabbit

Local effects

Skin irritation Hazardous in case of skin contact (irritant).

Eye irritation Hazardous in case of eye contact (irritant).

Chronic toxicity Repeated or prolonged exposure is not known to aggravate medical condition.

Specific effects

Carcinogenic Effects Classified None. by NIOSH [Potassium hydroxide]. Classified None. by NIOSH [Ethanol]. Classified A4 (Not classifiable for human or animal.) by ACGIH [Ethanol]. Classified None. by NIOSH [Sodium hydroxide]. Classified None. by NIOSH [Phenol]. Classified A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC [Phenol].

Reproduction toxicity Classified Reproductive system/toxin/female, Reproductive system/toxin/male [PROVEN] [Ethanol].

Developmental and Teratogenic Effects

GENERAL INFORMATION :

The product contains phenol-resorcinol-formaldehyde resin, unreacted phenol and resorcinol. Vapours may be irritating to respiratory tract and eyes. Inhalation may cause nose and throat irritation, coughing, hoarseness, lachrymation, headache and nausea.

The liquid is irritating to skin and may cause burns. Skin contact may cause smarting pain, loss of pain sensation and later wounds. If the adhesive is not removed at once, there is a risk of absorption of phenol and resorcinol through skin, causing i.a systemic effects. Prolonged or repeated contact with adhesive/hardener mixture may cause hardening and cracking of skin and sensitization.

Contact with eyes causes intense pain. Great risk of burns and remaining eye damage.

Ingestion may cause burns with intense pain in mouth and throat, stomach pains, vomiting and systemic effects.

12 Ecological information.

Ecotoxicity Data

Ingredient Name ETHANOL **Species** Trout (LC50) **Period** 96 hours **Result** 14100 mg/l

GENERAL INFORMATION : The product contains resorcinol, which is hazardous to the environment. Very toxic to aquatic organisms.

13. Disposal considerations

Methods of disposal ; Waste of residues ; Contaminated packaging

Type: Hazardous chemical waste.

Location: not available

Classification: not available

Disposal.: Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Storage: not available

Recycling: not available

Instructions for emptying of different packages are available.

Waste Classification Not applicable.

European Waste Catalogue (EWC) : 080409*

Hazardous Waste: The classification of the product may meet the criteria for a hazardous waste

14. Transport information

International transport regulations

Regulatory Information	UN number	Proper shipping name	Class	Packing Group	Label	Additional information
ADR/RID Class	UN2810	Toxic liquid, organic, n.o.s. (Resorcinol, Phenol)	6.1	III		-
ADN Class	UN2810	Toxic liquid, organic, n.o.s. (Resorcinol, Phenol)	6.1	III		-
IMDG Class	UN2810	Toxic liquid, organic, n.o.s. (Resorcinol, Phenol)	6.1	III		Emergency Schedules (EMS) 6.1-02
IATA-DGR Class	UN2810	Toxic liquid, organic, n.o.s. (Resorcinol, Phenol)	6.1	III		-

15. Regulatory information

EU Regulations



Hazard symbol(s)

Harmful

Risk Phrases R21/22- Harmful in contact with skin and if swallowed.
R36/38- Irritating to eyes and skin.

Safety Phrases S23- Do not breathe vapour.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28- After contact with skin, wash immediately with plenty of water.
S51- Use only in well-ventilated areas.

Contains Phenol 203-632-7
Resorcinol 203-585-2

Product Use Classification and labelling have been performed according to EU directives 67/548/EEC, 1999/45/EC including amendments and the intended use.
- Industrial applications.

16. Other information

Full text of R-Phrases with no.

Appearing in Section 2 - Europe

R11- Highly flammable.
R24/25- Toxic in contact with skin and if swallowed.
R21/22- Harmful in contact with skin and if swallowed.
R22- Harmful if swallowed.
R34- Causes burns.
R35- Causes severe burns.
R36/38- Irritating to eyes and skin.

R50- Very toxic to aquatic organisms.

**: Text of classifications appearing in
Section 2 – Europe**

F - Highly flammable

T - Toxic

C - Corrosive

Xn - Harmful

Xi - Irritant

N - Dangerous for the environment.

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any

liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with

caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.